

THAT WHICH IS CLAIMED IS:

1. An electronic filter comprising:
a piezoelectric layer comprising an ordered
Langasite structure compound having the formula
 $A_3BC_3D_2E_{14}$, wherein A is strontium, B is tantalum, C is
5 gallium, D is silicon, and E is oxygen; and
a plurality of pairs of electrodes connected
to said piezoelectric layer and configured to cooperate
with said piezoelectric layer to perform a filtering
function.
2. An electronic filter according to Claim
1 wherein said ordered Langasite structure compound has
a substantially perfectly ordered structure.
3. An electronic filter according to Claim
1 wherein each of said plurality of pairs of electrodes
comprises first and second interdigitated electrodes.
4. An electronic filter according to Claim
1 wherein said plurality of pairs of electrodes are
connected to a same face of said piezoelectric layer so
that the electronic filter is a surface acoustic wave
5 (SAW) filter.
5. An electronic filter according to Claim
1 wherein said plurality of pairs of electrodes
comprises first and second pairs of electrodes
connected to respective opposing first and second faces
5 of said piezoelectric layer so that the electronic
filter is a bulk acoustic wave (BAW) filter.
6. An electronic filter according to Claim
1 wherein said ordered Langasite structure compound is

producible using a melt pulling crystal growth technique.

7. An electronic filter according to Claim 1 wherein said ordered Langasite structure compound has a relatively high thermally stability.

8. An electronic filter according to Claim 1 wherein components of said ordered Langasite structure compound have congruent melting properties.

9. An electronic filter comprising:
a piezoelectric layer comprising an ordered Langasite structure compound having the formula $\text{Sr}_3\text{TaGa}_3\text{Si}_2\text{O}_{14}$; and

5 first and second pairs of electrodes connected to a same face of said piezoelectric layer so that the electronic filter is a surface acoustic wave (SAW) filter.

10. An electronic filter according to Claim 9 wherein said ordered Langasite structure compound has a substantially perfectly ordered structure.

11. An electronic filter according to Claim 9 wherein each of said plurality of pairs of electrodes comprises first and second interdigitated electrodes.

12. An electronic filter according to Claim 9 wherein said ordered Langasite structure compound is producible using a melt pulling crystal growth technique.

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13. An electronic filter according to Claim 9 wherein said ordered Langasite structure compound has a relatively high thermally stability.

14. An electronic filter according to Claim 9 wherein components of said ordered Langasite structure compound have congruent melting properties.

15. An electronic filter comprising:
a piezoelectric layer comprising an ordered Langasite structure compound having the formula $\text{Sr}_3\text{TaGa}_3\text{Si}_2\text{O}_{14}$; and

5 first and second pairs of electrodes connected to respective opposite first and second faces of said piezoelectric layer so that the electronic filter is a bulk acoustic wave (BAW) filter.

16. An electronic filter according to Claim 15 wherein said ordered Langasite structure compound has a substantially perfectly ordered structure.

17. An electronic filter according to Claim 15 wherein each of said plurality of pairs of electrodes comprises first and second interdigitated electrodes.

18. An electronic filter according to Claim 15 wherein said ordered Langasite structure compound is producible using a melt pulling crystal growth technique.

19. An electronic filter according to Claim 15 wherein said ordered Langasite structure compound has a relatively high thermally stability.

20. An electronic filter according to Claim 15 wherein components of said ordered Langasite structure compound have congruent melting properties.

21. A method for making an electronic filter comprising:

providing a piezoelectric layer comprising an ordered Langasite structure compound having the formula
5 $A_3BC_3D_2E_{14}$, wherein A is strontium, B is tantalum, C is gallium, D is silicon, and E is oxygen; and

connecting a plurality of pairs of electrodes to the piezoelectric layer to cooperate therewith and perform a filtering function.

22. A method according to Claim 21 wherein the ordered Langasite structure compound has a substantially perfectly ordered structure.

23. A method according to Claim 21 wherein connecting the plurality of pairs of electrodes comprises connecting the pairs of electrodes to a same face of the piezoelectric layer so that the electronic
5 device is a surface acoustic wave (SAW) filter.

24. A method according to Claim 21 wherein connecting the plurality of pairs of electrodes comprises connecting first and second pairs of electrodes to respective opposing first and second
5 faces of the piezoelectric layer so that the electronic device is a bulk acoustic wave (BAW) filter.

25. A method according to Claim 21 wherein providing the ordered Langasite structure compound comprises producing the ordered Langasite structure compound using a melt pulling crystal growth technique.